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CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

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Lab No.: CECTC/BBMP/KRIDL/W.No.14/BC/Sp.Gr/2017-18 10.06.2017

Specific Gravity And Water Absorption Test
IS: 2386 Part III

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, BBMP, Bangalore
Name of the Work	Improvements to 2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
Type of Mix	Bituminous Concrete
Date of Testing	10.06.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2044	1985	1995	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1289	1230	1240	
4	Weight of saturated surface dry aggregate in air	W_3 g	2031	2015	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	742	785	778	
6	Weight of oven dried aggregate	W_4 g	2018	2002	2008	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.720	2.550	2.581	2.617
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.768	2.593	2.615	2.659
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.64%	0.65%	0.50%	0.60%

Comments:

- Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No.: CECTC/BBMP/KRIDL/W.No.14/BC/AGG/2017-18 10.06.2017

Aggregate Gradation Test
IS : 2386 Part I

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
Name of the Work	Improvements to 2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	10.06.2017

Total Weight of Sample: **5400** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	530	9.81	9.81	90.19	79 - 100	
9.5	570	10.56	20.37	79.63	70 - 88	
4.75	725	13.43	33.80	66.20	53 - 71	
2.36	656	12.15	45.94	54.06	42 - 58	
1.18	649	12.02	57.96	42.04	34 - 48	
0.600	623	11.54	69.50	30.50	26 - 38	
0.300	630	11.67	81.17	18.83	18 - 28	
0.150	324	6.00	87.17	12.83	12 - 20	
0.075	420	7.78	94.94	5.06	4 - 10	

Total Weight of Sample: **4850** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	656	13.53	13.53	86.47	79 - 100	
9.5	485	10.00	23.53	76.47	70 - 88	
4.75	632	13.03	36.56	63.44	53 - 71	
2.36	521	10.74	47.30	52.70	42 - 58	
1.18	656	13.53	60.82	39.18	34 - 48	
0.600	549	11.32	72.14	27.86	26 - 38	
0.300	368	7.59	79.73	20.27	18 - 28	
0.150	372	7.67	87.40	12.60	12 - 20	
0.075	325	6.70	94.10	5.90	4 - 10	

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Job No: CECTC/BBMP/KRIDL/W.No.14/BC/Bit/2017-18 10.06.2017

BITUMEN DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IRC : SP : 11 - 1984

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
NAME OF THE WORK	Improvements to 2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
SAMPLE I/D	2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14
DATE OF TESTING	10.06.2017

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	469	470
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	31	30.00
7. Bitumen content in %	6.20	6.00
8. Average	**6.10**	

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Job No: CECTC/BBMP/KRIDL/W.No.14/BC/GR/2017-18 10.06.2017

GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
NAME OF THE WORK	Improvements to 2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
SAMPLE I/D	2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14
DATE OF TESTING	10.06.2017

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	Trail 1	
19	0	0	0	100	100
13.2	38	8.10	8.10	91.90	79-100
9.5	43.5	9.28	17.38	82.62	70-88
4.75	71.8	15.31	32.69	67.31	53-71
2.36	66.8	14.24	46.93	53.07	42-58
1.18	73.8	15.74	62.67	37.33	34-48
0.6	45.9	9.79	72.45	27.55	26-38
0.3	36.5	7.78	80.23	19.77	18-28
0.15	29.5	6.29	86.52	13.48	12-20
0.075	41.7	8.89	95.42	4.58	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.5	7.77	7.77	92.23	79-100
9.5	43.7	9.30	17.06	82.94	70-88
4.75	70.2	14.94	32.00	68.00	53-71
2.36	65.9	14.02	46.02	53.98	42-58
1.18	73.5	15.64	61.66	38.34	34-48
0.6	44.6	9.49	71.15	28.85	26-38
0.3	36.5	7.77	78.91	21.09	18-28
0.15	29.2	6.21	85.13	14.87	12-20
0.075	41	8.72	93.85	6.15	4-10

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Job No.: CECTC/BBMP/KRIDL/W.No.14/BC/Sta/2017-18 10.06.2017

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
Name of the Work	:	Improvements to 2nd, 3rd, 4th, 5th & 6th cross roads at Navy layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	10.06.2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Resuit 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.05	10.15	9 Kn (min)
2	Marshal flow, mm	2.35	3.20	2 – 4
3	Percent air voids in Mineral Aggregate	13.65	14.20	13 – 15
4	Voids in Compacted Mix	4.10	4.70	3 – 6
5	Percent Voids filled with Bitumen	71.52	72.50	65 - 75
6	Density, g/cc	2.25	2.26	--

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